



The Ecological Importance of Wetlands

Photo by Rosemary Records



Nitrogen in Wetlands

One threat to aquatic ecosystems is excess nitrogen entering as runoff from more developed or cultivated areas. Although it is an essential element for life on earth, excess nitrogen can cause serious ecological problems such as eutrophication, enhancement of algal growth that cuts down the penetration of light and may be toxic. Through denitrification (one part of a complex nitrogen cycle that takes place in wetlands) wetlands can transform excess nitrogen into atmospheric nitrogen, a form that will not contaminate waterways.

Although wetlands make up only a small percentage of the earth's surface, they play a crucial ecological role, serving as buffers between aquatic and terrestrial ecosystems. One of wetlands' defining characteristics - their water-logged, primarily anaerobic (oxygen-lacking) soil - creates conditions where a variety of nutrients can be transformed (or, as with heavy metals, immobilized). This ability to transform materials allows wetlands to filter pollutants and to improve water quality - so effectively that wetlands have been used in the treatment of wastewaters.

Because of wetlands' rich soils and generally level ground they are considered prime areas for agricultural and urban development. In the United States, agricultural development alone has led to an estimated loss of over 50% of wetlands.

Historically dismissed as "wastelands," wetlands are now coming to be appreciated for not only these filtering and buffering abilities, but other invaluable ecological functions: for example, their role as crucial habitat for wildlife (including a high percentage of endangered and threatened species).

At Point Reyes National Seashore, where wetlands are protected from development, research is being conducted to better understand these complex ecosystems, and wetland restoration projects are also underway throughout the park. Ultimately, wetlands must be preserved not only for their important ecological functions, but also for their own unique beauty.